

AN7017S, AN7017SB

FM/TV Front-end ICs for 1.5V Headphone Stereo, Radio Cassette Recorder

■ Overview

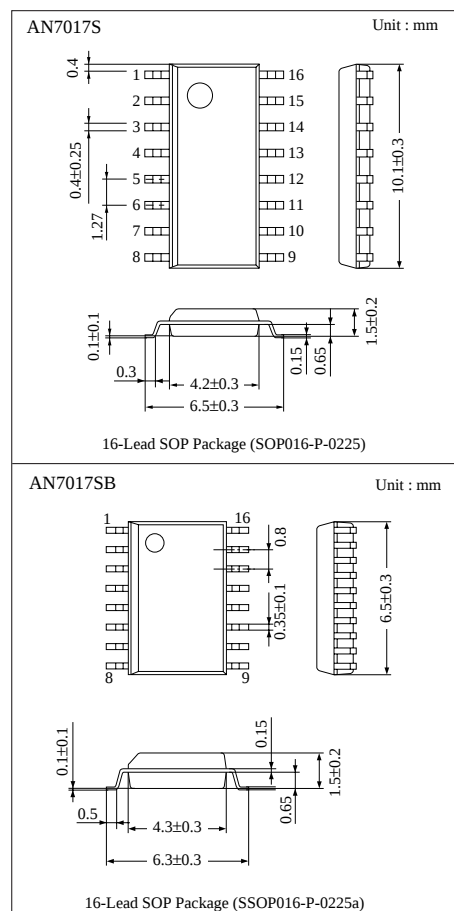
The AN7017S and the AN7017SB are the ICs incorporating FM/TV front-end most suitable for headphone stereo.

Sealed in a 16-pin flat package, the chip operates stably at TV band (170MHz ~ 222MHz) FM band (76MHz ~ 108MHz).

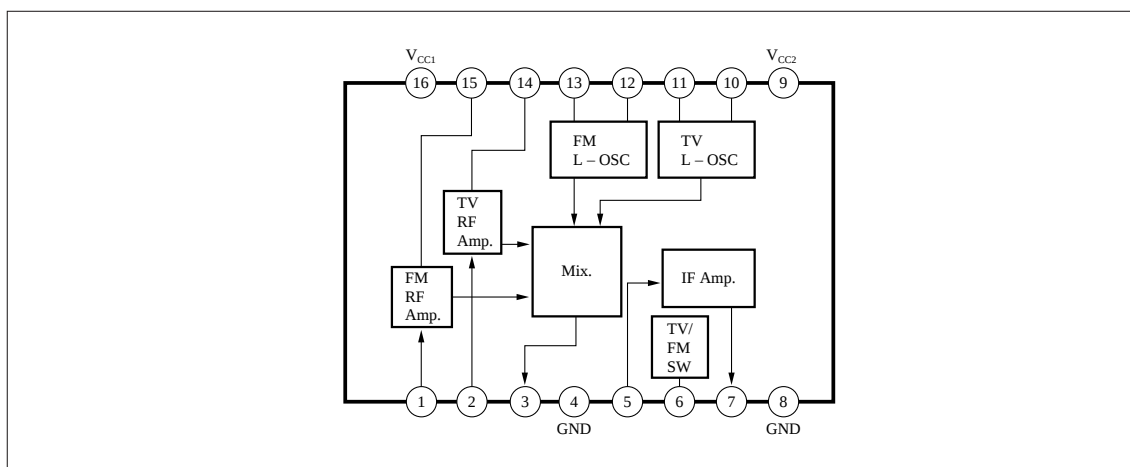
RF amplifiers and oscillations are provided in FM/TV band individually, and are designed most suitably. So both characteristics of FM/TV band are satisfied.

■ Features

- Low current consumption
- Band switching circuit built-in
- A single chip integrating FM/TV band
- IF amp. built-in



■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	2.5	V
Supply Current	I_{CC}	10	mA
Power Dissipation	P_D	30	mW
Operating Ambient Temperature	T_{opr}	-22 ~ + 75	°C
Storage Temperature	T_{stg}	-55 ~ + 125	°C

■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	1V ~ 2V

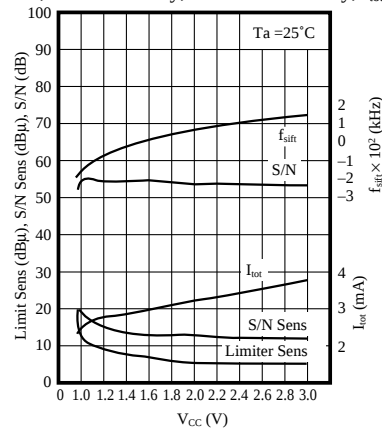
■ Electrical Characteristics ($V_{CC}=1.2V$, $T_a = 25^\circ C$)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
FM	No Signal Current	I_{tot} (FM)	—	2.5	—	mA
	Conversion Gain	G_{conv} (FM)	—	31	—	dB
	Oscillation Voltage	V_{OSC} (FM)	—	73	—	mV
	S/N	S/N (FM)	—	55	—	dB
TV	No Signal Current	I_{tot} (TV)	—	3.2	—	mA
	Conversion Gain	G_{conv} (TV)	—	27	—	dB
	Oscillation Voltage	V_{OSC} (TV)	—	57	—	mV
	S/N	S/N (TV)	—	53	—	dB

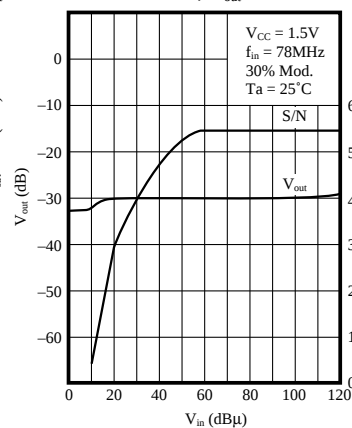
Note) Conversion Gain= $20\log(\Delta V_{(\mu V)} \div 100)$
 ΔV is output difference at 40dB μ and 46dB μ .

■ Characteristics Curve

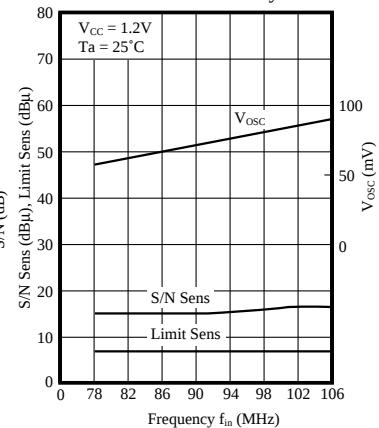
Supply Voltage Characteristics (FM)–
Oscillation Frequency Deviation
S/N, S/N Sensitivity, Limiter Sensitivity, I_{tot}

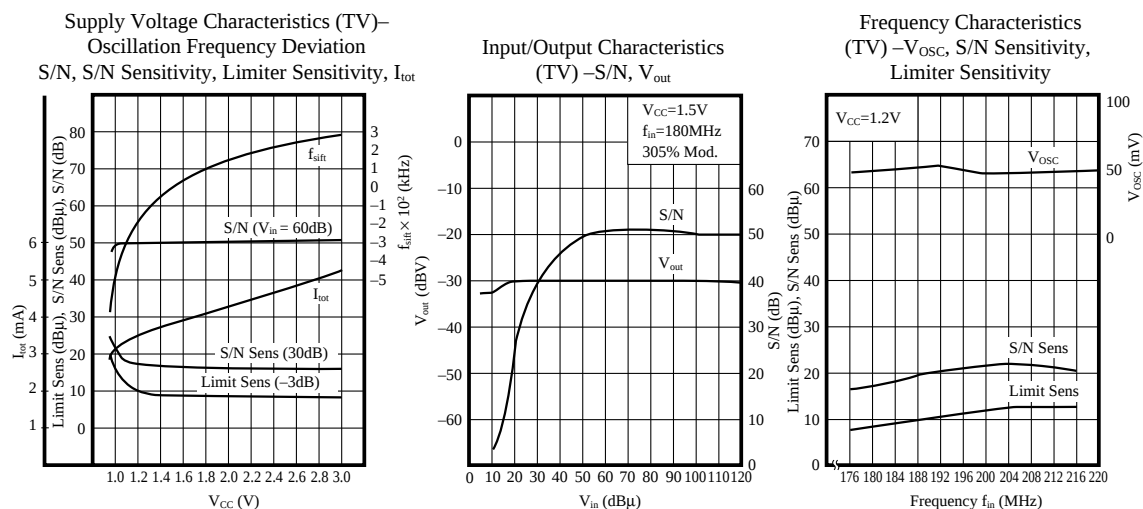


Input/Output Characteristics –
S/N, V_{out}

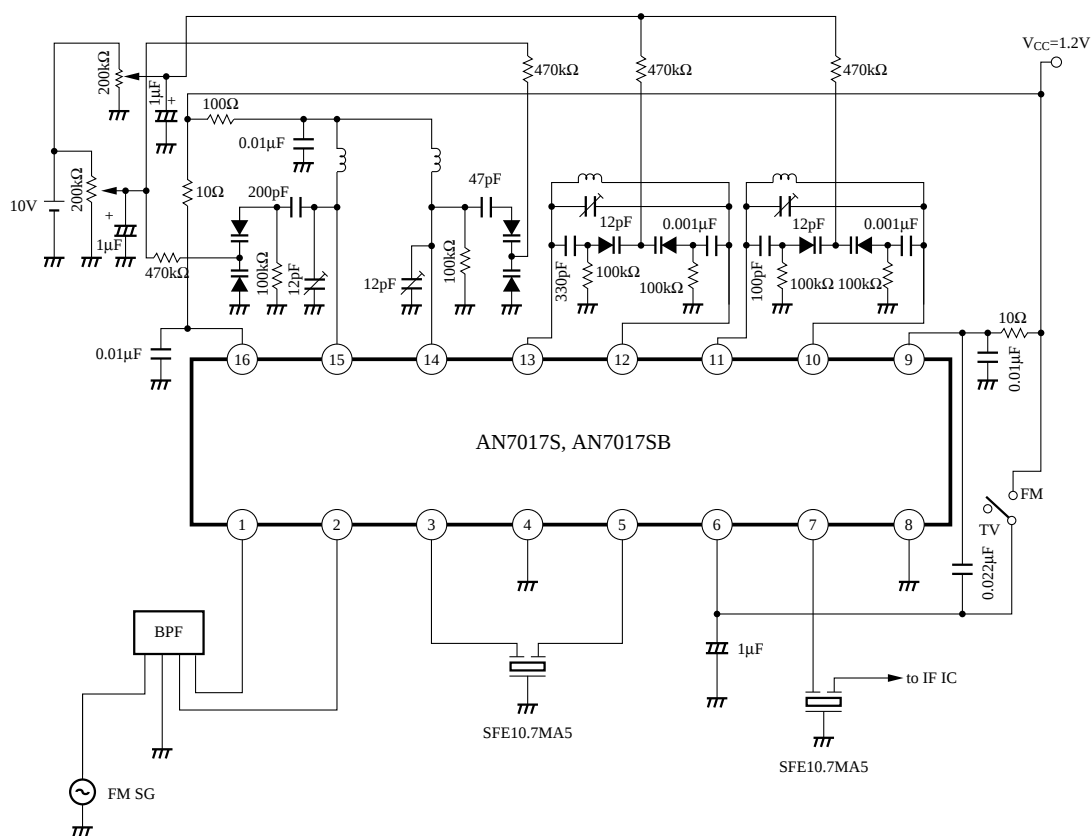


Frequency Characteristics
(FM) – V_{OSC} , S/N Sensitivity,
Limiter Sensitivity





■ Application Circuit



- FM Antenna Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 11T Variable Capacitance : SVC203CP (SANYO)
 FM Oscillation Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 13T Ceramic Filter : SFE10.7MA5 (MURATA)
 TV Antenna Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 3T Band Pass Filter : TVSB4 (SOUSHIN)
 FM Oscillation Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 4T IF Amp. : AN7236 (Panasonic)

■ Pin Descriptions

Pin No.	Pin Name	Typ.Waveform	Description	Equivalent Circuit
1	FM RF Input	FM signal	FM RF input pin	
15	FM RF Output	FM signal	FM RF output pin	
4	GND	DC 0V	GND pin Used for RF amp. /Mixer.	
3	Mix. Output	10.7MHz IF signal	Mix. output pin Ceramic Filter connect to output.	
5	IF Input	10.7MHz IF signal	IF input pin	
6	TV/FM switch		TV/FM switching At FM, stop the current source of TV circuit by connecting Pin6 to V _{CC} , and at TV, stop the current source of FM circuit by opening this.	
7	IF Output	10.7MHz IF signal	IF output pin	
8	GND		GND pin Used for IF amp. /oscillation circuit current source	

■ Pin Descriptions (Cont.)

Pin No.	Pin Name	Typ.Waveform	Description	Equivalent Circuit
9	V _{CC2}	DC 1.5V	Supply voltage pin Used for IF amp. /oscillation circuit current source	_____
10 · 11	TV OSC	160MHz ~ 216MHz oscillation	TV OSC pin	
12 · 13	FM OSC	65MHz ~ 96MHz oscillation	FM OSC pin	
2	TV RF Input	TV signal	TV RF input pin	
14	TV RF Output	TV signal	TV RF output pin	
16	V _{CC1}	DC 1.5V	Supply voltage pin Used for RF amp., mixer	_____